

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: Stephen T. Wellinghoff, et al.

SERIAL NO.: 10/057,506

FILED: January 23, 2002

TITLE: Novel Methods and Blends for  
Controlling Rheology and Transition  
Temperature for Liquid Crystals

Group Art Unit: 1711

Examiner: Not Yet Assigned

Atty Docket: SwRI-2385-03

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

INFORMATION DISCLOSURE STATEMENT

Dear Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the references listed on the attached Form PTO-1449 be considered by the Examiner and made of record.

This Information Disclosure Statement is not to be considered as a representation that a search has been made or that no other material information as defined under 37 C.F.R. § 1.56 exists.

The commissioner is hereby authorized to charge any additional fees or credit any overpayment to Deposit Account No. 50-0997 (SWRI-2835-03).

Respectfully submitted,

Dated: 4-11-02

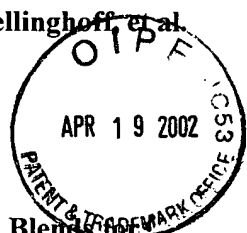
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I hereby certify that this paper, along with any referred to as being attached or enclosed, is being forwarded to Commissioner of Patents and Trademarks, Washington, D.C. 20231, via the United States Postal Service, First Class Mail, prepaid on the 15 day of April, 2002.

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## INFORMATION DISCLOSURE STATEMENT

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SWRI-2385

SERIAL NO.

10/057,548

APPLICANT

Wellinghoff et al.

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01/23/2002

GROUP

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA	RE. 32,073	01/28/1986	Randklev			
	AB	4,215,033	07/29/1980	Bowen			
	AC	4,539,048	09/03/1985	Cohen			
	AD	4,588,756	05/13/1986	Bowen			
	AE	4,623,738	11/18/1986	Sugerman et al.			
	AF	4,659,751	04/21/1987	Bowen			
	AG	4,663,147	05/05/1987	DePrince			
	AH	4,753,652	06/28/1988	Langer et al.			
	AI	4,964,911	10/23/1990	Ibsen et al.			
	AJ	4,978,640	12/18/1990	Kelly			

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	PUBL. DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
✓	AK	2,181,507	01/19/1997	Canada				
✓	AL	EP 0159887 A2	30.10.85	EPO				
✓	AM	EP 1142863 A2		EPO			X	

## OTHER DISCLOSURES (Including Author, Title, Date, Pertinent Pages of Publication, Etc.)

✓	AN	"Nanostructured Materials: A Technical-Market Analysis", Mincy N. Ritter, Business Communication Co., Inc., Fine, Ultrafine and Nano Powders '98'
✓	AO	H. Schmidt et al., "Organically modified ceramics and their applications", Journal of Non-Crystalline Solids, 1990, 121, pp. 428-435
	AP	Mark W. Ellsworth et al., "Mutually Interpenetrating Inorganic-Organic Networks. New Routes into Nonshrinking Sol-Gel Composite Materials", J. Am Chem. Soc., 1991, 113, 2756-2758

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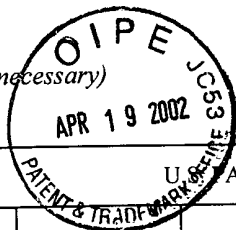
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*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	BA	5,030,608	07/09/1991	Schubert et al.			
	BB	5,057,018	10/16/1991	Bowen			
	BC	5,064,877	11/12/1991	Nass et al.			
	BD	5,276,068	01/04/1994	Waknine			
	BE	5,308,886	05/03/1994	Masuhara et al.			
	BF	5,328,947	07/12/1994	Taguchi et al.			
	BG	5,334,625	08/02/1994	Ibsen et al.			
	BH	5,372,796	12/13/1994	Wellinghoff			
	BI	5,401,528	03/28/1995	Schmidt			
	BJ	5,472,797	12/05/1995	Yajima et al.			
	BK	5,486,548	01/23/1996	Podszun et al.			

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		DOCUMENT NUMBER	PUBL. DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	BL	EP 0754 675 A2		EPO				
	BM	JP H 5-178794	12/26/91	Japan			Best	
	BN	WO 92/16183	24.04.97	PCT			Yes	

## OTHER DISCLOSURES (Including Author, Title, Date, Pertinent Pages of Publication, Etc.)

BO	Stephen Wellinghoff et al., "Tantalum oxide-polymer composites", The International Symposium on Advances in So.-Gel Process and Applications, Edited by Y.A. Attia, Plenum Press, pp 141-154, 1994.
BP	Christine Landry et al., "In situ polymerization fo tetraethoxysilane in poly(methyl methacrylate): morphology and dynamic mechanical properties", POLYMER, 1992, Vol. 33, No. 7, pp. 1486-1495
BQ	Michael J.S. Dewar et al., "Factors Influencing the Stabilities of Nematic Liquid Crystals", Jorنال of American Chemical Society, 97:23, 6658-6666

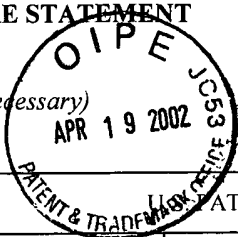
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	CA	5,502,087	03/26/1996	Tateosian et al.			
	CB	5,556,931	09/17/1996	Imura et al.			
	CC	5,663,214	09/02/1997	Okada			
	CD	5,670,583	09/23/1997	Wellinghoff			
	CE	5,695,681	12/09/1997	Siemensmeyer et al.			
	CF	5,720,805	02/24/1998	Wellinghoff et al.			
	CG	5,730,601	03/24/1998	Bowman et al.			
	CH	5,804,097	09/08/1998	Delavier et al.			
	CI	5,833,880	11/10/1998	Siemensmeyer et al.			
	CJ	5,834,532	11/10/1998	Yamamoto et al.			

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		DOCUMENT NUMBER	PUBL. DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
✓	CK	WO 97/14674	24.04.97	PCT				
✓	CL	WO 98/23580	04.06.98	PCT				
✓	CM	WO 99/17716	15.04.99	PCT				

## OTHER DISCLOSURES (Including Author, Title, Date, Pertinent Pages of Publication, Etc.)

✓	CN	Wolfgang Wedler et al., "Vitrification in Low-molecular-weight mesogenic Compounds", J. Mater. Chem., 1991, 1(3), 347-356
✓	CO	Sukmin Lee et al., "Phase Behavior of Liquid Crystalline Polymer/Model Compound Mixtures: Theory and Equipment", Macromolecules, Vol. 27, No 14, 1994, 3955-3962
✓	CP	R.A.M. Hikmet et al., "Effect of the Orientation of the Ester Bonds on the Properties of Three Isomeric Liquid Crystal Diacrylates Before and After Polymerization", Macromolecules, Vol. 28, No. 9, 1995, 3313-3327

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*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	DA	5,852,248	12/22/1998	Chadwick			
	DB	5,859,089	01/12/1999	Qian			
	DC	5,865,623	02/02/1999	Suh			
	DD	5,886,064	03/23/1999	Rheinberger et al.			
	DE	5,897,885	04/27/1999	Petticrew			
	DF	5,910,273	06/08/1999	Thiel et al.			
	DG	5,991,991	06/15/1999	Keller et al.			
	DH	5,995,514	09/21/1999	Huang et al.			
	DI	5,998,499	12/07/1999	Klee et al.			
	DJ	6,220,404	02/08/2000	Ettlinger et al.			

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## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	PUBL. DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
✓	DK	WO 98/13008	02/04/98	PCT				
✓	DL	WO 94/24052	27.10.94	PCT				
	DM							

## OTHER DISCLOSURES (Including Author, Title, Date, Pertinent Pages of Publication, Etc.)

✓	DN	Y. Wei et al., "Synthesis of New Organic-Inorganic Hybrid Glasses"; Chem. Mater. 2(4), 337 (1990)
✓	DO	Manabu Node et al. "Hard Acid and Soft Nucleophile System. 2. <sup>1</sup> Demethylation of Methyl Ethers of Alcohol and Phenol with an Aluminum Halide-Thiol System", J. Org. Chem. 1980, 45, 4275-4277 (1980 American Chemical Society)
✓	DP	Glancarto Galli et al., "Thermotropic poly(ester- $\beta$ -sulfide)s", Polymer Bulletin 21, 563-569 (1989)

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*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	EA	6,027,816	02/22/2000	Ono et al.			
	EB	6,031,015	02/29/2000	Ritter et al.			
	EC	6,087,816	07/11/2000	Volk			
	ED	6,335,462	01/01/2002	Etzbach et al.			
	EE						
	EF						
	EG						
	EH						
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							YES	NO
	EK							
	EL							
	EM							

## OTHER DISCLOSURES (Including Author, Title, Date, Pertinent Pages of Publication, Etc.)

	EN	"Titanium Tin Oxide Nanoparticles for Sunscreen Applications"
	EO	
	EP	

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